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ABSTRACT

This paper presents evidence to substantiate the argument that statistics on illness and mortality rates should be broken down by separate sex-race groups of white male, white female, nonwhite male, and nonwhite female in order to accurately describe the inequalities of rates for death and illness experienced by these groups. Data were collected from 1963 to 1970 for a large national sample of normal, noninstitutionalized youth between the ages of 6 and 17 years. The resulting information on health status, health histories and experiences in the home, school and community was examined for differences among the four groups in health-related variables at adolescence. Groups were found to differ by race, rather than sex on a Health Status Exam measure which consisted of a physician's examination, a dental examination and laboratory and clinical measures; the ratings for white youth were higher than those of black youth. Neither race nor sex differences seemed great on a Health-Home measure which consisted of a parent interview concerning their children's health history. Differences by both race and sex were apparent with respect to the youths' self-ratings on a questionnaire of their health status. Boys' ratings were higher than girls' in both race groups, but nonwhites ratings were higher than whites. The female groups ranked above both male groups on a School-Health measure. (Author/SS)

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The Need to Study Health of Adolescents by Sex-Race Group*

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Inequality among groups in the population on variables reflecting values and goals of our nation is and quite properly is a topic of interest and concern to researchers. "Opportunity" is one of these, and a wide range of variables constituting "quality of life" is another. Remarkably, much less frequent attention is given to quantity of life, the actual number of years alive. Routine reports from state and national levels regularly contain great differences in mortality rates, clear evidence of disparity in the rates at which various groups experience death. In recent years reports on morbidity have begun to appear, with figures again showing differences among population groups in their rates for experiencing illnesses of various kinds. Characteristics used for such population breakdowns are most frequently age, region of the country, rural or urban location of residence, income level, race and sex.

Only infrequently are the last two of these characteristics, race and sex, broken down into the separate sex-race groups of white male, white female, nonwhite males, nonwhite female. When these breakdowns are presented, there frequently are very different rates for sexes within one race and for races within one gender, as we shall soon see. The purpose of this paper is to make a case for the proposition that this disaggregation of data is essential in order accurately to describe and conceptualize the inequalities of rates for death and illness experienced by each of the sex-race groups.

Year after year, evidence for differences in health status of the four sex-race groups appears in the form of life-expectancy rates, or conversely, rates of early death. In this study data for a large national sample of

normal, noninstututionalized youth were examined to seek precursors of those figures in differences in health-related variables at adolescence of the four sex-race groups.

The basic rationale for the proposition is that race and sex are both powerful variables influencing individuals in our society, and the four classifications produced by the mix of the two constitute four different patterns.

Difficulties are introduced if one attempts to go from differences in general mortality rates by gender alone, or race alone, to say anything about the specific sex-race groups. For one thing, in the U.S. as in many populations, differences between the sexes is contributed to by racial groups of different sizes. Whites constituted 87% of the population of 213 million in the U.S. in 1975 (Health-US, p. 135), and of the remaining 13%, 11.5% were blacks. (The foregoing percentages give basis for the frequent practice of equating "all other" (than white) with figures for blacks, but we should realize when this is done that there are 3.5 million persons who are "other than black" in the "all other than white" group.)

Further difficulties derive from the fact that the general mortality rate consists of "deaths from all causes" and is contributed to differently by the several actual causes. We shall soon see that specific causes may have very different proportions of gender and race than does the general mortality rate. The data portrayed in Figure 6 below shows that in the case of one leading cause of death, cerebrovascular disease, the sex-race group at the top in that instance is at the bottom always for general mortality, namely, the white female group.

Let us turn now to some data showing the extent to which rates for the separate sex-race groups diverge from the differences existing for gender alone or for race alone. The information in Table 1 gives rates for age-adjusted mortality rates for the U.S. in 1950 and 1975 and the decrease which occurred in actual and percentage terms, for gender groups and race groups, and for the sex-race groups separately.

- Table 1 here -

The data for the separate groups indicate that the gender difference for percentages of decrease in mortality rates between 1950 and 1975 of 15% for males and 31% for females among whites is actually a difference of 15 to 30%, but among nonwhites is a difference of 19 to 40%. Similarly for differences between races in mortality rates between those dates. Among males, the difference for the races is one of 15 to 19%; among females, the difference by race is one of 30 to 40%.

A table adapted from Spiegelman and Erhardt (1974) on the basis of data from the National Center for Health Statistics for age-adjusted rates for death from all causes between 1900 and 1964 shows these comparisons in the form of the changing ration of male to female for whites and nonwhites separately, and of rates of nonwhite to white, for males and females separately.

- Table 2 here -

The variations among the separate sex-race groups is probably best shown by the trends over time in rates for some of the leading causes of death considered separately. It is the different patterns in particular

Table 1. Age-adjusted rates for general mortality for the US in 1950 and 1975, with the differences in rates and percentage of differences in the rates for sex groups, race groups and for the sex-race groups separately (p. 159, Health-US-1976)

Gender and Race Groups

	Mortality Rates		Differ.	% Differ.
	1950	1975		
Gender				
Male	10	8.5	1.5	15%
Female	6.9	4.7	2.2	31%
Race				
White	8.0	6.1	1.9	23%
Nonwhite	12.3	8.5	3.8	30%

	1950	1975	Differ.	% Diff.
Gender Differences Among Whites				
Male	9.6	8.1	1.5	15%
Female	6.5	4.5	2.0	30%
Gender Differences Among Nonwhites				
Male	13.6	11.0	2.6	19%
Female	10.9	6.5	4.4	40%
Race Differences Among Males				
White	9.6	8.1	5.1	15%
Nonwhite	12.6	11.0	2.6	19% Males
Race Differences Among Females				
White	6.5	4.5	2.0	30%
Nonwhite	10.9	6.5	4.4	40% Females

Table 2. Ratios of male to female and of nonwhite to white death rates based on age-adjusted ratio for all ages for successive five-year periods from 1900 to 1964.
(Taken from Speigel and Erhardt, 1974)

	Ratio of rates			
	Male to female		Nonwhite to white	
	White	Nonwhite	Male	Female
1960-64	1.67	1.38	1.33	1.61
1955-59	1.61	1.32	1.32	1.61
1950-54	1.53	1.28	1.39	1.65
1945-49	1.44	1.21	1.36	1.61
1940-44	1.35	1.18	1.46	1.67
1935-39	1.27	1.16	1.53	1.67
1930-34	1.22	1.11	1.56	1.71
1925-29	1.17	1.07	1.61	1.76
1920-24	1.12	1.00	1.46	1.63
1915-19[a]	1.16	1.03	1.48	1.67
1910-14	1.17	1.07	1.51	1.65
1905-09	1.16	1.07	1.56	1.69
1900-04	1.12	1.10	1.62	1.65

Source: Data for 1900 through 1949 from Vital Statistics-Special Reports, vol. 43, no. 1, January 9, 1956; data from 1950 through 1964 from National Center for Health Statistics (unpublished).

[a] Average for four years excluding 1918.

causes of death, in any case, which epidemiologists use to move toward an understanding of diseases and of population groups and their risks of death or illness.

The graphs in Figures 1 through 6 present the changes between 1950 and 1975 in mortality rates by race groups, sex groups, and by the separate sex-race groups for all of the following: malignancies, diseases of the heart, suicide, accidents, homicide and, finally, cerebrovascular disease. Notice the great and sometimes rapid increases in disparity between two sex-race groups, as for malignancies, between white male and nonwhite female. Again, note that one particular sex-race group may be far away from the other three as is true for the white male for suicide, and the nonwhite male for homicide. Notice, further, how these facts are missed if one considers differences by gender only, or by race only.

- Figures 1 through 6 here -

Spiegelman and Erhardt (1974) present information regarding percentages of decreases in the age-adjusted death rates for the sex-race groups for the period between 1900 and 1964 and for the earlier and the later parts of that period separately.

Percentage of Decrease in Age-Adjusted Death Rate (all causes)	White Male	White Female	Nonwhite Male	Nonwhite female
Between 1900 and 1964	49.0%	65%	58%	66.9%
1900 to 1930	30.1%	35.4%	32.8%	33%
Between 1930 and 1964	27%	46.8%	37.6%	49.9%

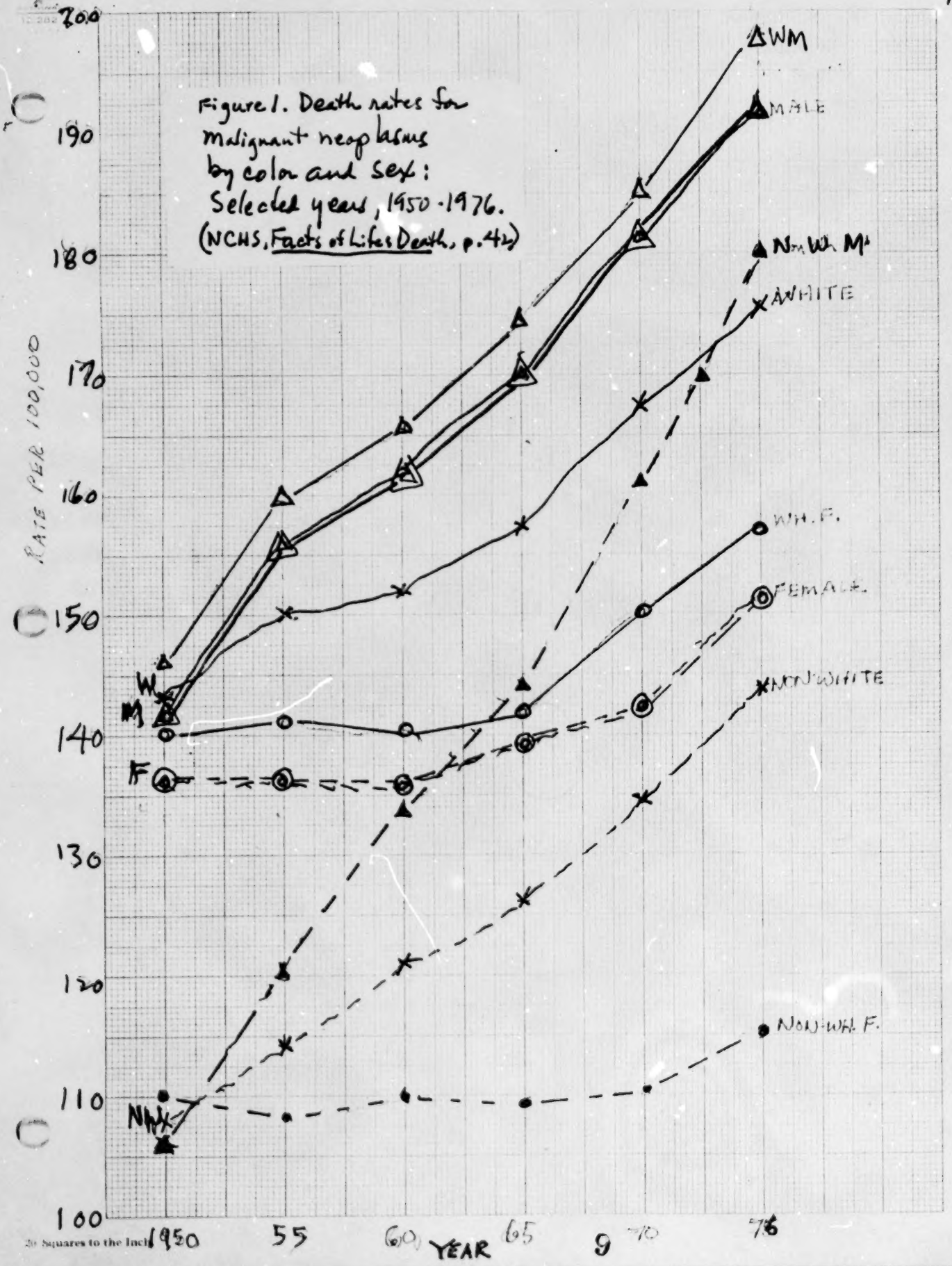

Figure 1. Death rates for malignant neoplasms by color and sex: Selected years, 1950-1976. (NCHS, Facts of Life & Death, p. 42)

20 Squares to the Inch

Figure 2. Death rates for diseases of heart by color and sex: selected years, 1950-1976.

(NCHS, Facts of Life & Death, p. 41.)

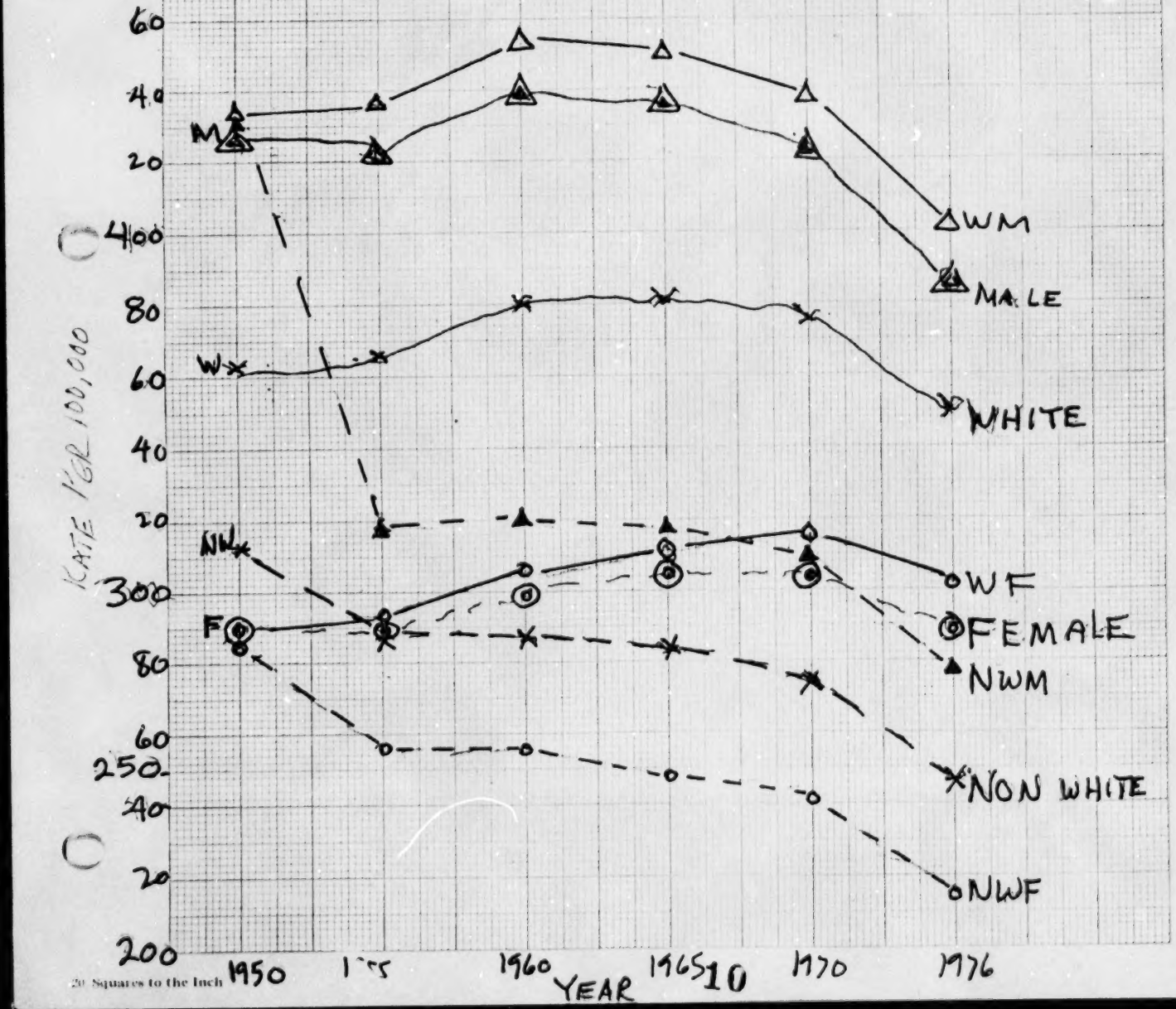

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Figure 3. Death rates for Suicide by color and sex: Selected years, 1950-1976.

(NCHS, Facts of Life and Death, p. 46)

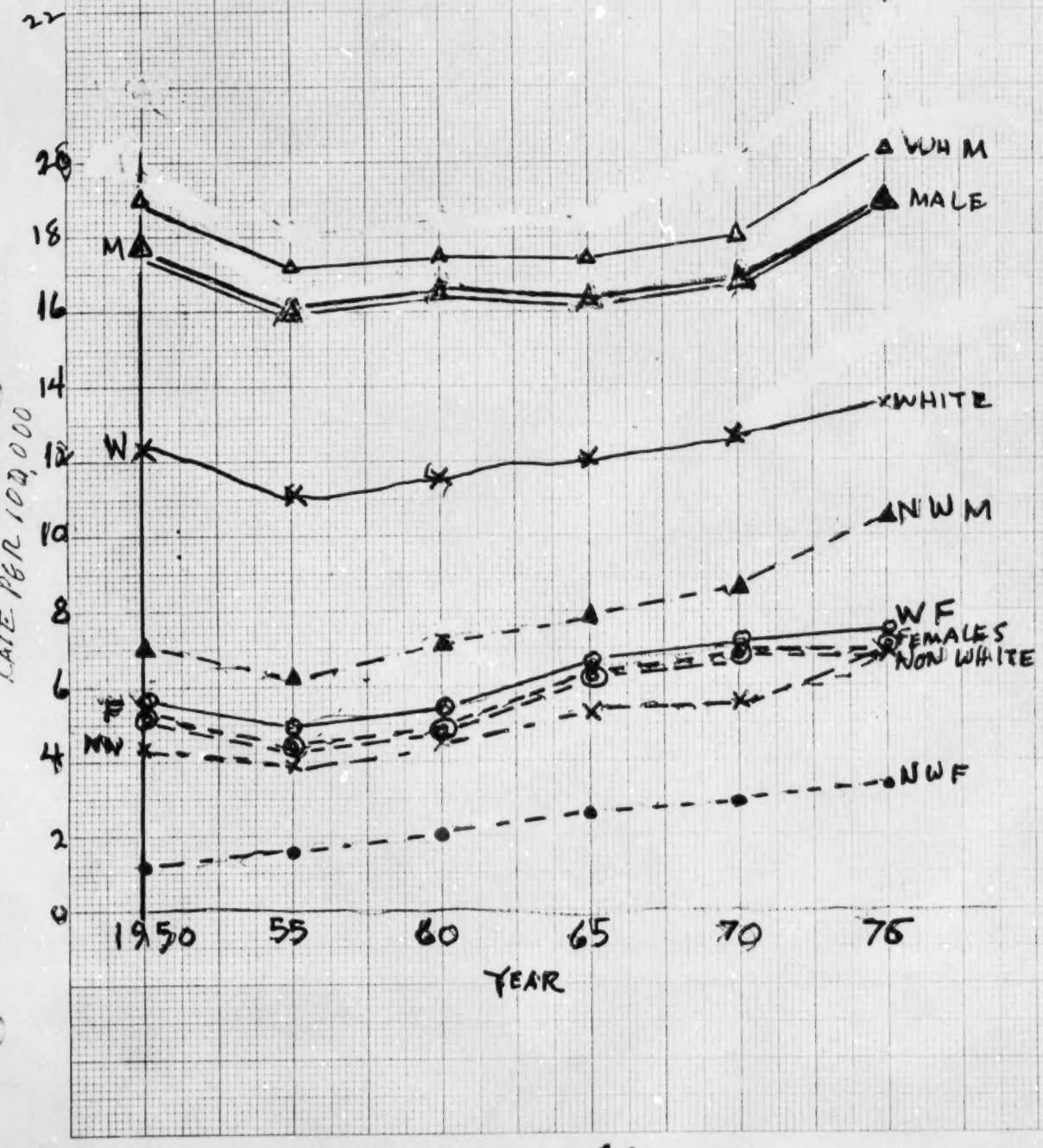


Figure 4. Death rates for accidents by color and sex: Selected years, 1950-1975.. (NCHS, Facts of Life Death, p. 45)

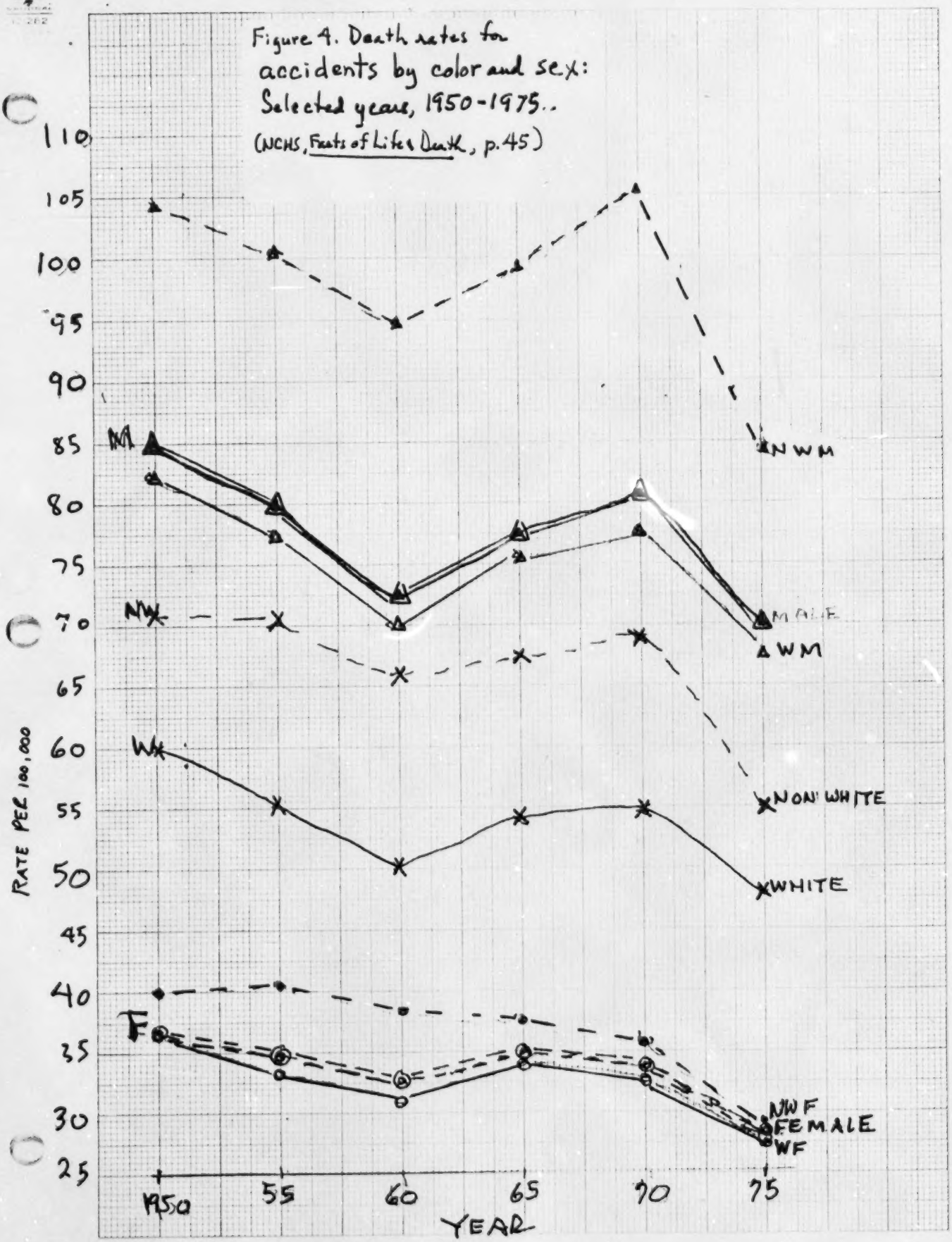


Figure 5. Death rates for homicide by color and sex: Selected years, 1950-1976.

(NCHS, Facts of Life & Death, p. 47)

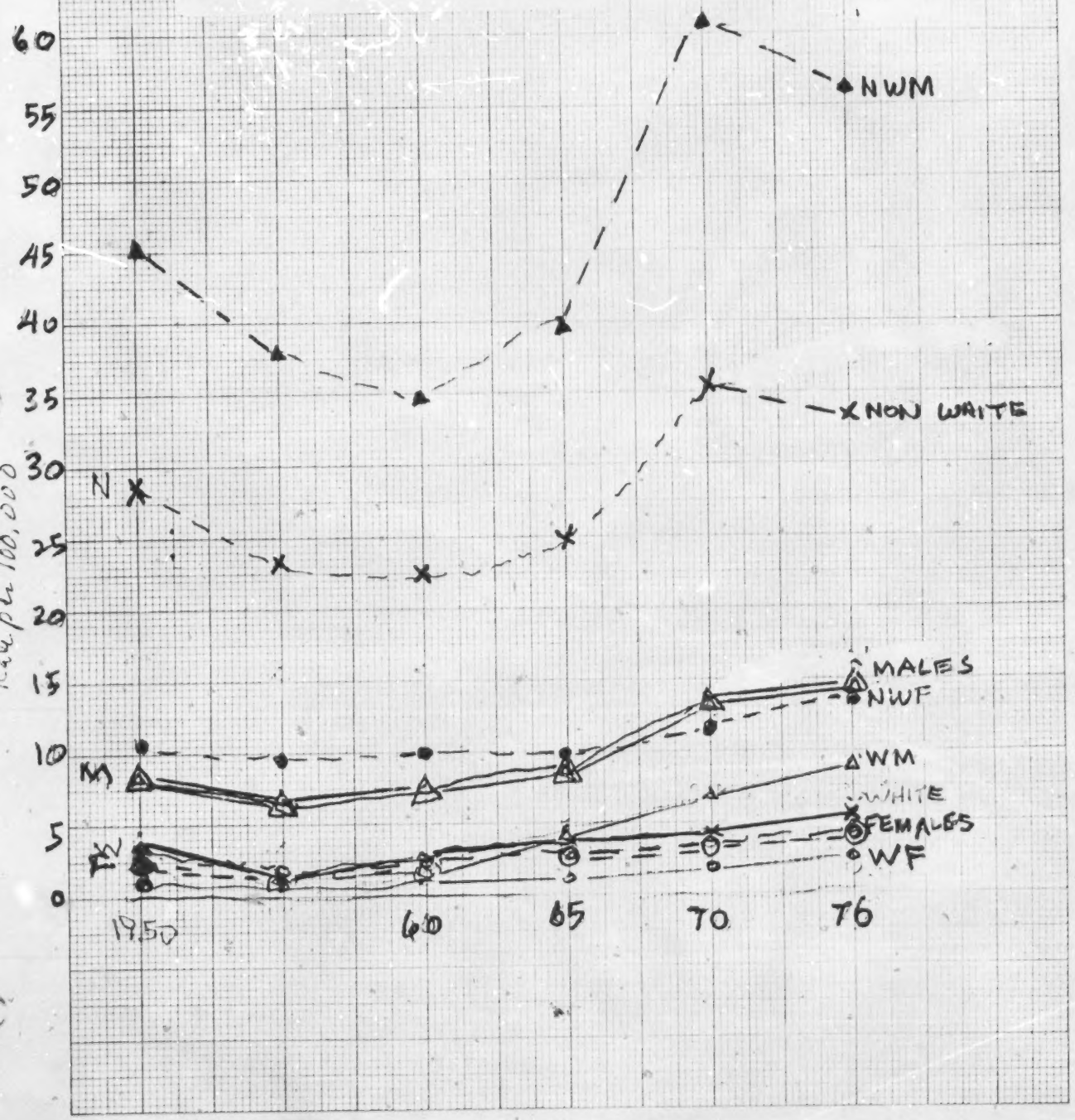
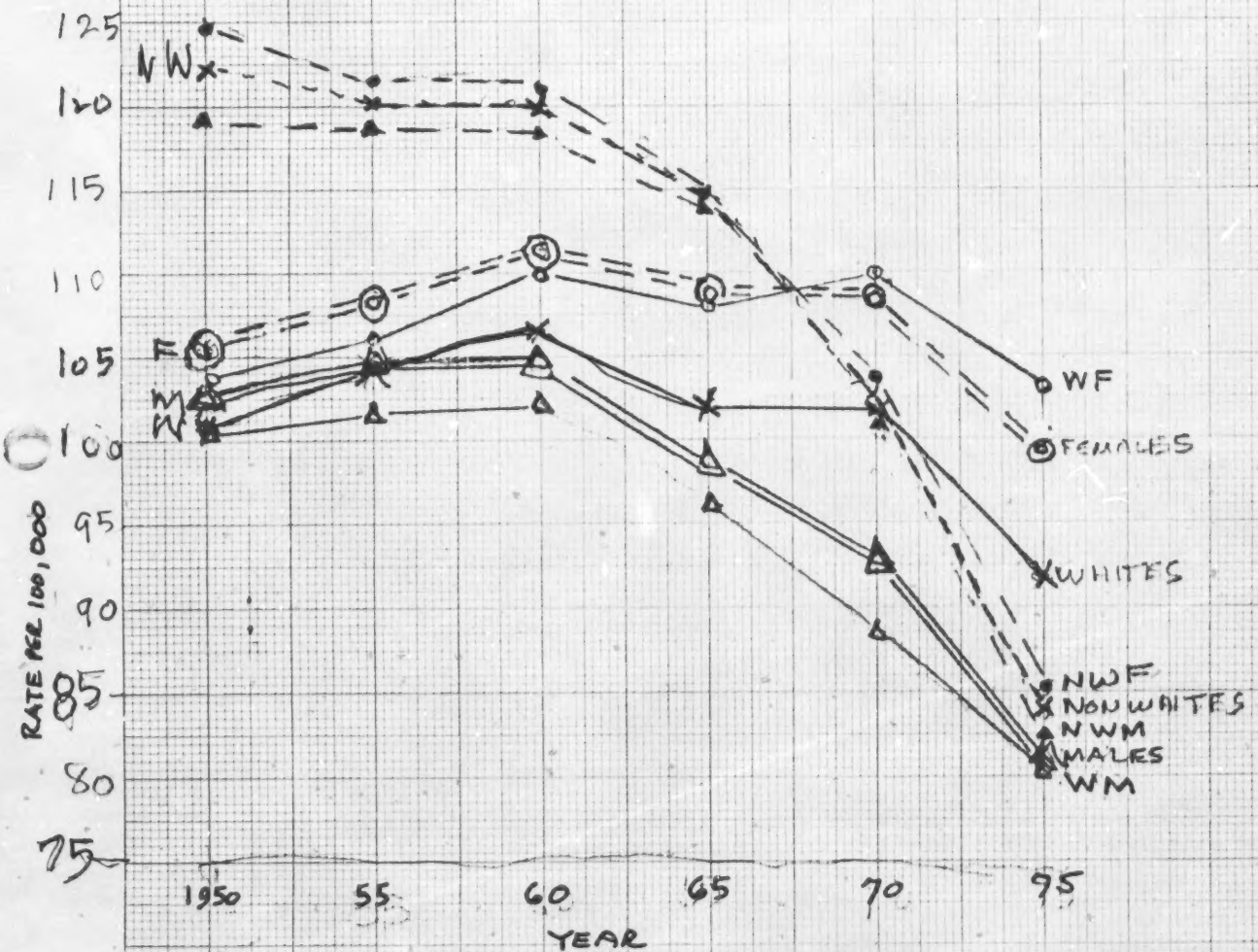


Figure 6. Death rates for cerebrovascular diseases by color and sex: Selected years, 1950 - 1975.
(NCHS, Facts of Life & Death, p. 43.)



20 Squares to the Inch

The material presented in the preceding graphs regarding the sex-race group differences on mortality from some of the leading causes of death during the later part of that period of time gives some basis for understanding particular reasons behind some of the groups having decreases in death rates so much lower than others.

When rates for separate age-groups over time are examined, we find that mortality rates for adolescents and young adults have failed to decrease in step with most of the other age groups, and have in a few cases begun to rise in recent years. Because of that fact, as well as because this study is focused upon this age group, we turn to look next at mortality data for adolescents in some detail. Data from Health-US-1976 (NCHS, 1978) presents a separate profile of changes between 1950 and 1975 for the sex-race groups between 15 and 19 years, for death from all causes and by a few of the leading causes during those years. Table 3 contains that information.

- Table 3 here -

The reader may wonder what the foregoing information on mortality rates has to do with analysis of data on a group of persons between 12 and 17 years of age, all of whom were alive and well when studied. Two points need to be mentioned regarding the relevance of this introductory material . In the first place, we should like to repeat here the point made very well by Birch and Gussow in their study of health of the disadvantaged (1970). To study the population of infants and children in poverty, they began by looking at infant mortality rates. In their chapter entitled "Death and Deficit ", they explained that figures on a

Table 3. Rates and percentages of changes between 1950 and 1975 in rates of mortality from all cuases and for leading causes among 15 to 19 year olds for all and for sex race groups[1] (Rates per 100,000 persons of this age group, U.S., based on a 50% sample of deaths)

Causes and Year	Population Group									
	All		Wh. Male		Wh. Female		NW Male		NW Female	
	Rate	% ch.	Rate	% ch.	Rate	% ch.	Rate	% ch.	Rate	% ch.
All Causes										
1950	108.6		130.5		62.3		218.8		176.7	
1975	101.5		144.5		54.4		164.3		65.4	
Change	7.1	-6.5%	14	+10%	9.9	-15%	54.6	-24%	111.3	-62%
Malignant Neoplasms										
1950	7.9		9.3		6.6		7.2		7.9	
1975	6.0		7.1		5.1		6.6		4.3	
Change	1.9	-24%	2.2	-23%	1.5	-22%	6	-8%	3.6	-45%
Heart									16.5	
1950	7.5		6.7		5.8		16		16.5	
1975	2.0		2.2		1.2		4.4		3.3	
Change	5.5	-73%	4.5	-67%	4.6	-79%	11.6	-72%	13.2	-80%
Accidents										
1950	49.0		78.8		18.4		83.3		19.7	
1970	57.4		93.3		26.4		65.8		16.2	
Change	6.4	+17%	14.5	+18%	8.0	+43%	17.5	-21%	3.5	-17%
Suicide										
1950	2.7		3.7		1.9		2.2		1.5	
1975	7.6		13		3.1		7.0		2.1	
Change	4.0	+181%	0.3	+251%	1.2	+63%	4.8	+218%	0.6	+40%
Homicide										
1950	3.9		2.6		1.2		27.5		10.7	
1975	9.6		8.2		3.2		47.8		14.6	
Change	5.7	+146%	5.6	+215%	2.0	+166%	20.3	+173%	3.9	+36%

[1]Adapted from NCHS Health-US-1976. Table 28, pp. 172-174.

population's infant mortality are to be regarded as the tip of the iceberg of the developmental deficits of the infants in that population. For each infant who actually dies, there are others who are also disabled but manage to survive.

Secondly, and related to that point, it is evident that the causes of death which have been shown, in Table 3, to be on the rapid increase among 15 to 19 year olds, are related to behavioral and lifestyle factors. Suicide, homicide and accidents are related to problems in social relationships and community characteristics which exert influences upon a far greater number of that age group than those who actually die of those causes. Investigations of sex differences in mortality among youth (Waldron and Eyer, 1975) and among other age groups as well (Verbrugge, Nathanson, Vaupel, Wegman) have brought out the behaviorally-related nature of the causes of mortality on the increase especially among males. Vaupel, 1978, and Kitagawa & Hawser, 1976, have noted the same for mortality among nonwhites, the latter authors especially upon those who are poor.

There is the further coincidence that the mortality rates for 15-19 year olds in Table 3 came from the population group from which the Health Exam Survey youth sample was drawn. These give the mortality record of the same general cohort whose data are to be examined in this article.

Also relevant to the study of sex-race group differences in adolescent health are recent studies which have investigated sex differences in mental illness during chiodhood and adolescence. Attempts have been made to document the differences in prevalence of mental illness by sex group. Some proposals have been made to link these to the interaction of sex-role socialization and pupil-role demands and expectations at school

(Gove, 1979; Locksley and Douvan, 1979; Lee and Voivodas, 1976). In some of this work there is evidence that stress-related disorders among males exceed those of females in the younger (elementary school) years, while the females catch up and/or go ahead of males during adolescence. Here, as with the morbidity figures for all ages from the Health Interview Survey, differences in "responsiveness about illness" rather than "prevalence of illness" have been suggested as explanation for the different results for men and women. It has been proposed that an aspect of the female role in our culture is that it is all right to say, or to admit, that one is sick, whereas the opposite is the case for the male role: it is not all right. Differences in frequency and nature of obligations at work also make it difficult for males "to be sick." The extent to which this extends into one's own perception of one's state as opposed to one's report to others is speculated about, but is not a problem to answer with survey research methods. Mechanic (1966) has written of the complicated links between the reaction patterns he calls "illness behavior" and physiological responses.

In any case, none of these students of sex differences in mental illness have presented data for the different races within the separate sex groups. Surely this needs to be done if only because of the recent rise in sex-race group differences in suicide rates.

Method

The study is based upon the data set from the Health Examination Survey of the National Center for Health Statistics. Information on health status, health histories and experiences in the home, school and community were carefully gathered during the years between 1963 and 1970 for a national

sample between the ages of 6 and 17 years. The total survey consisted of two stages. In the first of these, known as HES Cycle II, the population of children between 6 and 11 were the subjects studied between 1963 and 1966. Youth between 12 and 17 were studied in HES Cycle III, between 1967 and 1970. Each of the two samples consisted of approximately 7,400 individuals, evenly spaced by chronological age, and with an equal proportion at each age of male and female subjects. White and nonwhite proportions throughout the samples reflected the population proportions. Only in a survey so massive as this is it possible to examine sex-race group differences across such a range of ages and income levels, and located in various rural-urban settings and in the several regions of the country.

The wealth of data on the health of the children of the Health Examination Survey included estimates of overall health and health-related items from many sources, each of which had its own particular value. These included the physician who carried out the physical examination, the parent who gave a detailed health history of the subject, the official of the subject's school, the psychologist who made an examination of the subject, the laboratory reports on blood tests and the like, and finally, the long questionnaire completed by the youths themselves.

From the totality of items available, the health-related items most likely to be significant have been selected from the above-named sources. Together these constitute a many-sided view of the subject's health status.

The many different sources of information regarding health status together with the large sample size permits breakdowns into sex-race groups which are of substantial size. This combination makes these data eminently suitable for comparing the health of the separate sex-race groups.

Health Status-Exam consists of the examining physician's general assessment of whether or not there were any significant abnormalities on the physical examination. Other findings from the physical examination are grouped with this item, together with items from the dental examination and reports of laboratory and clinical measures.

This category is regarded as the most objective and reliable of the measures of health status. It is a unique feat to have made such thorough and extensive examinations of a large national sample of children throughout such an age range. Since the examinations were made and the records do exist, the data set is unprecedented as a yardstick derived from professional study and judgment of the status of health of such a large group of subjects at the ages of childhood and adolescence, selected to be representative of the total population.

The items constituting Health Status - Exam appear on Table 4, along with the other groupings of items. These are Health Status - Home, Health Status - Youth and Health Status - School.

- Table 4 here -

Health Status - Home, the view from the interview with the subject's parent, Health Status - School and the Youth's own report provide material to compare these various perceptions with the Health Status - Exam, regarded here as the objective standard. This combination of assessments of health from a variety of sources provides an opportunity to check the proposition suggested (among others) by Verbrugge (1976) that the higher morbidity for females may be in part due to the different socialization of females with respect to reporting illness.

Table 4. Items included under all categories of Health Status

Health Status - Exam

1. From Physical Examination:
   a. Significant finding of abnormality on physical exam
   b. Any irregularity of body system:
      1) cardiovascular
      2) musculoskeletal
      3) other system
2. Dental
   a. Peridontal disease
   b. treatment priority index
3. Lab reports and clinical measures
   a. Blood pressure, systolic
   b. Blood pressure, Dyastolic
   c. Cholesterol
   d. Hematocrit
   e. Pulse rate

Health Status - Home

(all items from parent interview)

1. Parent rating the child's present health
2. Whether health is "a worry" to parent now
3. Whether there was a problem during this pregnancy
4. Whether there was a problem with child at birth
5. Whether there was a problem with child's health since the first year
6. How sick child was with most serious illness
7. Whether there was any lasting
8. Whether or not child is "nervous"

Health Status - Youth

(all items reported by youth on questionnaire)

1. Youth's own rating of health
2. Whether any participation in games or sports is prohibited

Report of any of the following problems;

3. Insomnia
4. Acne
5. Feel upset over acne
6. Any broken bones, ever
7. Any serious injury, ever
8. Whether youth wears glasses
9. Other eye trouble
10. Earaches
11. Other ear trouble
12. Teeth need straightening
13. Any difficulty talking, ever
14. Backache
15. Underweight
16. Overweight
17. Weight just right
18. Feel "fidgety"
19. Feel that good health is important

Table 5. Sex-race group rankings on Health Status - Exam items (Low rank = high health status)

	Sex-Race Group - Rankings for Best-Health Response			
	White Female	White Male	Nonwhite Male	Nonwhite Female
Abnormality finding on exam	1	2	4	3
Body system irregularity, Cardiovasc.	1	2	4	3
Body system irreg., Musculoskeletal	1	2	4	3
Body system irregularity, other	1	2	3	4
Dental: peridontal disease	1	2	3	4
Dental: treatment priority index	3	1	4	2
Lab/Clinical: Blood pressure, Sys.	2	4	3	1
" Blood pressure, Dias.	2	1	4	3
" Cholesterol level	2	1	3	4
" Hematocrit	3	1	2	4
" Pulse rate	4	2	1	3
Group Frequency for Each Rank				
Rank 1	5	4	1	1
Rank 2	3	6	1	1
Rank 3	2	0	4	5
Rank 4	1	1	5	4

Table 6. Sex-race group rankings on Health Status - Home items and Health Status - School (low rank = high health status)

Item	Sex-Race Group Ranking for Best-Health Response: White Female	White Male	Nonwhite Male	Nonwhite Female
Parent rating of youth's health	2	1	3	4
Whether youth's health is now a worry	1	2	3	4
Any problem during pregnancy	3	4	1.5	1.5
Any problem present at birth	1	3	4	2
Any problem since first year	1	4	2	3
How sick, most serious illness	2	1	3	4
Any lasting effects	1	3	4	2
Nervous	4	3	1	2
Group Frequency for Each Rank				
Rank 1 or 1.5	4	2	2	1
Rank 2	2	1	1	3
Rank 3	1	3	3	1
Rank 4	1	2	2	3
School Adjustment Evaluation	1	3	4	2

Table 7. Sex-race group rankings on Health Status - Youth items

(low rank = high health status)

Item	Sex-Race Group Ranking for Best-Health Response			
Item	White Female	White Male	Nonwhite Male	Nonwhite Female
Youth's rating on own health	2	1	3	4
Particip. games prohibited	3	4	1	2
Insomnia	4	3	1	2
Acne	3	4	1	2
Upset over acne	4	3	1	2
Broken bones	3	4	2	1
Injuries	2	4	3	1
Glasses worn	4	3	1	2
Other eye trouble	1	3	2	4
Ear aches	4	1	2	3
Other ear trouble	4	3	2	1
Teeth need straightening	2	1	3	4
Difficulty talking	1	2	4	3
Backache	4	2	1	3
Underweight	1	3	4	2
Overweight	4	2	1	3
Just right weight	3	2	1	4
Fidgety	4	2	1	3
Good health important	3	4	2	1
Group Frequency for Each Rank				
Rank 1	3	3	9	4
Rank 2	3	5	5	6
Rank 3	5	6	3	5
Rank 4	8	5	2	4

Finally, the items grouped together as "Health Behavior" and "Health Care" will be examined for any differences by sex-race groups. These factors ar obviously relevant both to morbidity and mortality differences. The items grouped together under these headings are presented following the presentation of findings with respect to Health Status.

Findings. The rankings of the sex-color groups for the Health Status - Exam items are presented in Table 5. Frequencies by sex-race groups for all responses to each item were made available through an SPSS program. These were in the form of percentages for each of the item response alternatives. The rank of "1" corresponds to the group with the highest frequency for the response to the item in the direction of "best health". Because there are four sex-race groupings, there are four ranks for each item. At the bottom of each column are summarized the numbers of each of the ranks for that sex-race group on the set of items.

Table 6 presents similar information for Health Status - Home and the single item used to indicate Health Status - School, and Table 7 presents the information for Health Status - Youth.

- Tables 5, 6 & 7 here -

The items from all sources which indicate Health Behavior are listed in Table 8. The information is given in the same way regarding the separate sex-race groups' rankings for frequency for the best-health behavior response to each item. For example, for Bedtime, the group with the highest percentage for reporting "usual bedtime by ten o'clock" would have a rank of "1", the group with next highest percentage for that response would have a rank of "2" etc. Again, at the bottom of the column for each sex-

Table 8. Sex-race group rankings on Health Behavior items

(low ranking = high health behavior)

Item	Sex-Race Group Ranking for Highest Health-Behavior Response			
	White Female	White Male	Nonwhite Male	Nonwhite Female
Oral hygiene index	1	2	4	3
Eating "right amount"	3	1	2	4
"Fussy eater"	3	2	1	4
Smokes	1	3	4	2
Number of ciagrettes smoked	1	2	4	3
Go to bed at or before 10	2	1	3	4
Good health "important"	3	4	2	1
Exercise: differential in pulse rate after 5 minutes	3	1	2	4
TV watching less than 2 hrs./day	1	2	4	3
Group Frequency for Each Group				
Rank 1	4	3	1	1
Rank 2	1	4	3	1
Rank 3	4	1	1	3
Rank 4	0	1	4	4

Table 9. Sex-race group ranking on Health Care items

(low rank = most health care)

Item	Sex-Race Group Ranking for Most Health Care Response: White Female	White Male	Nonwhite Male	Nonwhite Female
Health Care from Physician				
Dr. consulted re problem present at child's birth	3	1	2	4
Dr. saw youth at point of serious illness	2	1	3	4
Whether youth has seen psychiatrist	3	1	2	4
Whether youth has seen a doctor re acne problem	1	2	3	4
Prohibition from sports activity done on Dr.'s advice	2	1	3	4
Would talk to Dr.	3	4	2	1
Check-up by Dr. in last year	2	1	3	4
Treatment by Dr. in last year	1	2	3	4
Wears glasses or contacts	1	2	3	4
Health Care from Dentist				
Teeth being straightened	1	2	3	4
Dental check-up last year	1	2	3	4
Dental treatment in last year	1	2	3	4
Hospital Experience				
Born in hospital	2	1	4	3
Ever Hospitalized (since birth)	(frequencies not available at present)			
Group Frequency for Each Rank				
Rank 1	6	6	0	1
Rank 2	4	6	3	0
Rank 3	3	0	6	4
Rank 4	0	1	4	8

race group appears the number of ranks of "1," "2," etc., for that group on the set of Health Behavior Items.

Table 9 presents items from all sources which indicate Health Care. This concept refers to the child's contacts with health professionals and services in connection with particular needs or events (whether youth has seen a Doctor regarding a problem with acne), or according to expected norms (whether youth had had a dental check up in the last year). The highest ranking on an item ("1") is given for the sex-race group with the highest percentage for the response indicating more contact, as opposed to less contact with health professionals or health services. As with other variables, at the bottom of the column for each sex-race group appears the number of ranks of "1." "2," etc., for that group on the group of Health Care items.

- Tables 8 & 9 here -

In sum, then, Health Status of the national sample of adolescents studied in the Health Examination Survey has been quantified by grouping together the items relative to each of the four assessments of each subject's health: the physican examination (Exam), the parent report of the youth's health history (Home), the questionnnaire filled out by the subject (Youth), and adjustment evaluation from the educator (School). This information has been presented in Tables 5 through 7 above.

To bring together information regarding Health Status among youth for each of the sex-race groups, the findings from all of the Health Status categories are summarized in Table 10. The method used for grouping the findings for each sex-race -roup from each Health Status perspective, or

Table 10. Comparisons of rankings on Health Status from different perspectives by sex-race groups

Health Status Perspective	Total Number of items	Numbers of Items in High and in Low Ranks by Sex Groups within Race Group					
		WHITES					
		Females			Males		
		High Ranks (1&2)	% High	Low Ranks (3&4)	High Ranks (1&2)	% High	Low Ranks (3&4)
Health Status-Exam	11	8	73%	3	10	91%	1
Health Status-Home	8	6	75%	2	3	38%	5
Health Status-Youth	19	6	32%	13	8	42%	11
Health Status-School	1	1		0	0		1
		NONWHITES					
Health Status-Exam	11	2	18%	9	2	18%	9
Health Status-Home	8	4	50%	4	3	38%	5
Health Status-Youth	19	10	53%	9	14	74%	5
Health Status-School	1	1		0	0		1

Table 11. Comparisons of rankings on health behavior and Health Care by sex-race groups

Health Variable	Total Number of Items	Numbers of Items in High and in Low Ranks by Sex Group within Race Group: High Ranks (1&2)	% High	Low Ranks (3&4)	High Ranks (1&2)	% High	Low Ranks (3&4)
			WHITES				
		Females			Males		
Health Behavior	9	5	56%	4	7	78%	2
Health Care	13	10	77%	3	12	92%	1
			NONWHITES				
Health Behavior	9	2	22%	7	4	44%	5
Health Care	13	1	8%	12	3	23%	10

category (Exam, Home, etc.) was to indicate the number of that total group of items on which that sex-race group had one of the high rankings (1 or 2) vs. the number of low rankings (3 or 4).

- Tables 10 & 11 here -

The first question to answer on the basis of the findings regarding adolescent health is this one: As a group, what is each sex-race group like, with respect to the various perspectives on health status and the related matters of health behavior and health care?

When the data have been examined with respect to that question, it will be possible to move on to the question of the relationship of the findings of this analysis to previous studies addressed to the inequalities of mortality and morbidity rates among the sex-race groups.

The health information about each sex-race group has been brought together in the graph in Figure 7. Points have been plotted in terms of each group's percentages of item ratings with high ranks (rank of 1 or 2) for that Health Status category. The Health Status Exam, Home and Youth information is on the left of the graph, while Health Behavior and Care on the right.

- Figure 7 here -

The first sex-race group to be considered is the white female. Their percentages for high ranks for health are high more often than those of any other sex-race group. Ratings for the Exam items are not at the very high frequency of white males, but they are high for three-fourths of those items, and the same is true for the Home items. White females are

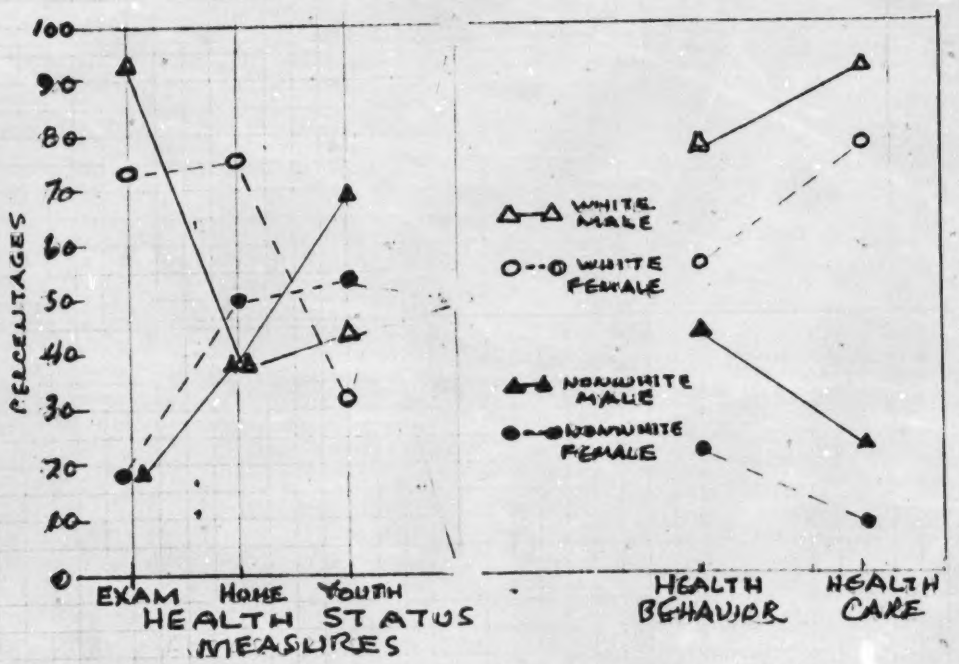


Figure 7. Percentages of item ratings with high ranks (ranks 1 or 2) for Health Status, Health Behavior and Health Care for the sex-race groups

in first place for "adjustment," the School item. Only on their ratings of themselves did this group fall so low as to have only about 30% of the items in one of the top ranks. The group of white female adolescents, seen as healthy by everyone else more than any other group, tended to evaluate their own health as problematic relative to other groups' self ratings.

White males were evaluated as in very good health for the important Exam measure. On over 90% of the item ratings the white male rank was in either first or second place. However, from the Home perspective, their health status ratings tended to be only in mid-position among the groups. On the School item, they were in third position among the four groups. While not so likely as white females to rate themselves low, white males did tend to rate themselves lower than either of the nonwhite groups.

The health status of nonwhite females must be regarded as much lower than either of the sex groups among whites. This is due to the Exam, where their rankings are high on only 18% of the items. The perspective of Home presents a better picture than the Exam, with high ranks 50% of the time. They were in second place among the four groups on school adjustment. The percentage was slightly higher than 50% for high ranks on their own evaluation, Health Status - Youth.

The health status of nonwhite males was not quite so good as the nonwhite females', and it lacked consistency. The Exam evaluations were the same as for nonwhite females, with strong rankings on only 18% of those items. (The perspective from Home also was not strong, with approximately 18% of those items.) The perspective from Home also was not strong, with approximately 38% of the item ranks high. The School perpsective was poor,

with their adjustment evaluation ranking in fourth place of the four groups. The only perspective with a positive picture of the nonwhite males' health was their own. On the Youth items, the self-ratings of nonwhite males were in high ranks on over 70% of the items.

Now, the information regarding Health Behavior and Health Care can be added to what we have seen to be true of each group's Health Status.

Just about half of the Health Behavior items of white females, 56% of them, were in the higher ranks. As to Health Care, the white females had a strong record of contact with the health care system, scoring in one of the two high ranks on almost 80% of the items.

The white males, possibly in a somewhat weaker position in Health Status than white females, were clearly in a strong position with respect both to Health Behavior and Health Care. The ratings for the Health Behavior items placed them in one of the higher ranks almost 80% of the time. For Health Care, their ratings placed them in the higher rankings on over 90% of the items. At the adolescent stage, therefore, white males in this sample seemed to be in a position to hold and improve their health status relative to other groups, if we regard Health Behavior and Health Care as giving this promise.

The nonwhite females, whose health status was in a much weaker position than the white groups, especially so on the Exam, would appear to have needed strong rankings for Health Behavior and Health Care. This unfortunately was not at all the case. On the Health Behavior items, the nonwhite females' record held high rankings on slightly over 20% of the items. As though this were not bad enough, on Health Care, the nonwhite female ratings were in a high rank on less than 10% of the items. Nonwhite males,

whose Health Status position appeared to be somewhat poorer than nonwhite females, had ratings for Health Behavior stronger than nonwhte females. Ratings for Health Behavior were in the higher position on over 40% of items. Their ratings on items in the Health Care group were high less than 10% of the time. This position, though not quite so low as the nonwhite females, indicated a clear lack of Health Care.

Discussion. Differences between the sexes in rates of mortality and morbidity have been the subject of various researchers in recent years. Some have written about the very high rates of early death among males (Vaupel, 1977) and others have sought to explain how it happens that with the higher mortality rates for males, the morbidity rates are higher for females (Verbrugge, 1976, Nathanson, 1977).

Very recently there has been a surge of interest in the subejct of differences between the sexes in rates of mental illness (Cole, 1974; Gove, 1979; Gove and Herb, 1974; Locksley and Douvan, 1979; Dohrenwend and Dohrenwend, 1976). Mental illness at the age period of adolescence has been the particular topic of some of these studies.

The data presented at the beginning of this article showed that sex differences do not give a complete picture unless the data are further disaggregated for races within the sex groups. For that reason, the material presented in this article bears upon the matter of health differences among sex-race groups at adolescence. During the period of ages 12 through 17 in this study, health status has been found to differ for the sexes in identifiable ways. In other ways, however, health has been found to differ depending upon race group. For this reason, these findings would seem to affirm the need for an analysis of adolescent health for each sex-race group separately.

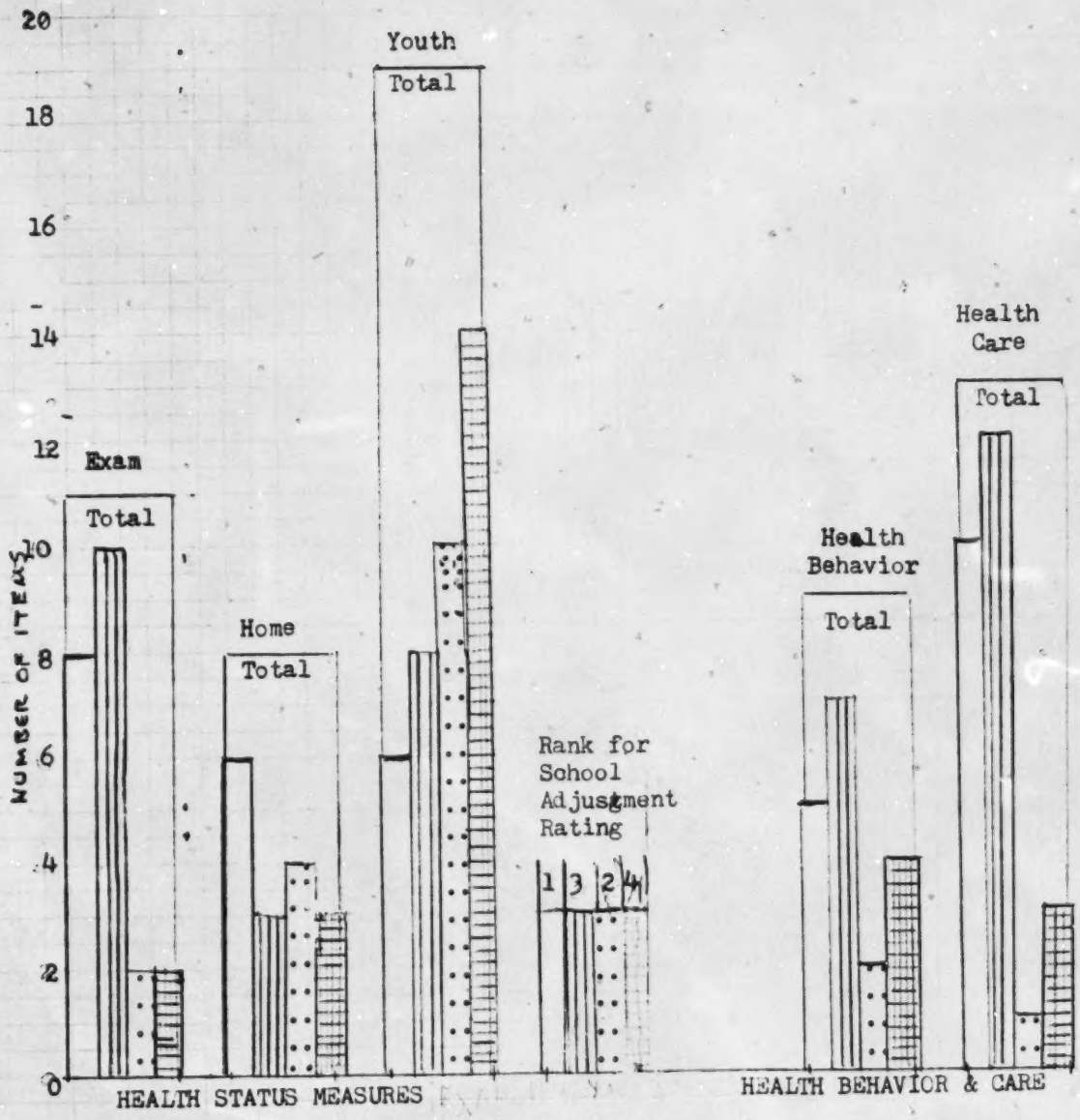


Figure 8. Sex-~~race~~ groups compared by number of high ranks on items for each measure of Health Status and Health Behavior and Health Care

□ = White females
▥ = White males
⁘ = Nonwhite females
▦ = Nonwhite males

To compare the record of the four groups with each other in the various measures, a histogram has been drawn up and appears as Figure 8. Of the total items comprising each measure, the bar for each sex-race group shows the number of items on which its rank was a high one (1 or 2).

- Figure 8 here -

The histogram demonstrates clearly that on the Health Exam measure, by far the most substantial single indicator of the subjects' health, it was by race rather than sex that the groups differed. Neither differences by race nor sex seemed very great on the Health - Home measure, though girls' ranks were somewhat stronger than boys' in both race groups. Differences by both sex and race were perhaps visible with respect to the youths' self ratings. In both race groups boys' ratings were higher in rank than girls', but nonwhites were clearly above whites. For the School perspective, the one item found the female groups above both male groups. Health Behavior would seem again to show influences of both sex and race, with whites above nonwhites, but boys above girls in both race groups. It is race which made the difference in Health Care, clearly, with whites of both sexes having high ranks on most of these items and nonwhites of both sexes having low ranks on most of the items.

The conclusion to which these findings points seems to be that the health status, health behavior and health care among adolescents of different sex and race is accurately represented by conceptualizing four models rather than two.

Though the data are not often disaggregated into sex groups by race, nor for racial groups by gender, the existence of four different patterns

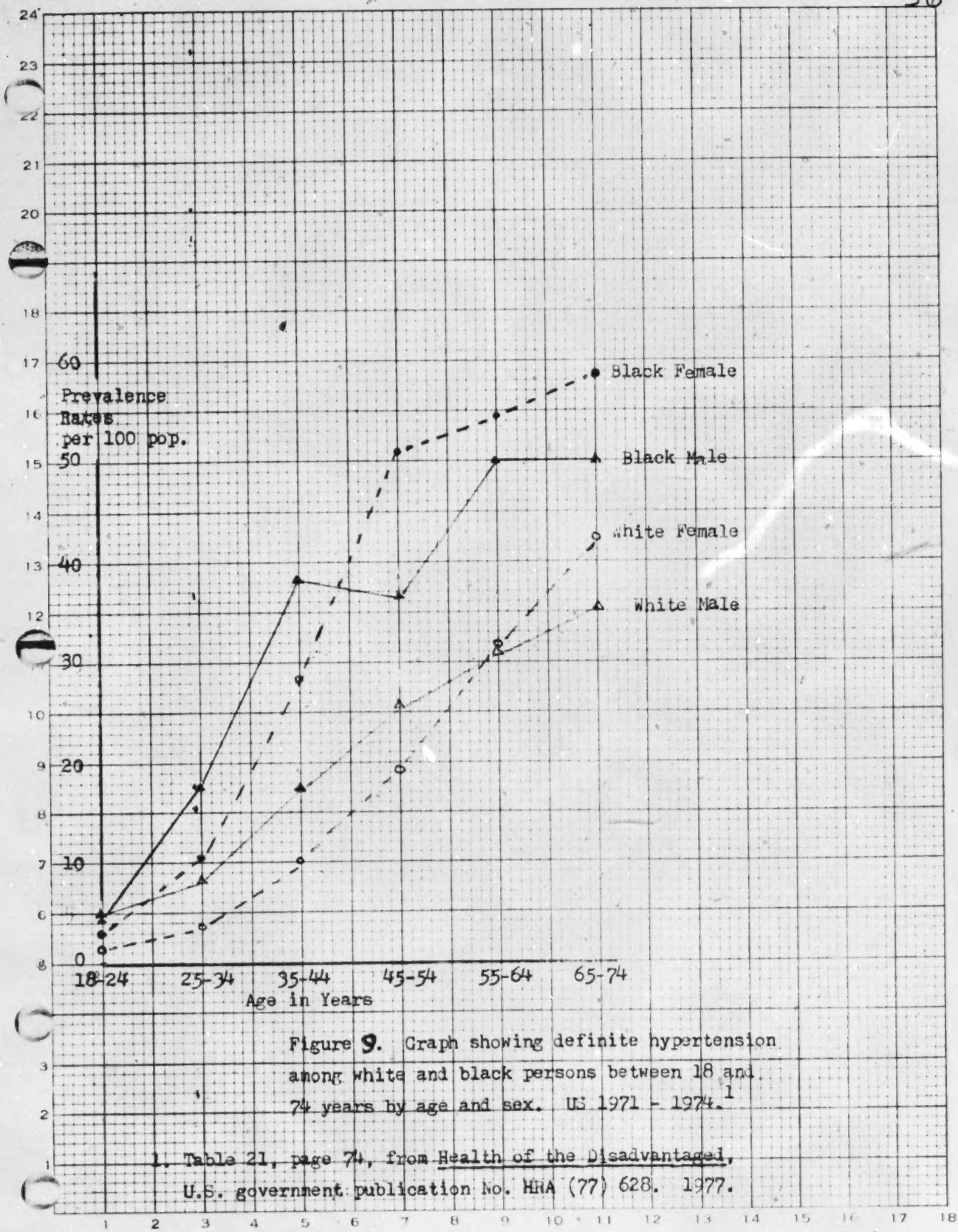


Figure 9. Graph showing definite hypertension among white and black persons between 18 and 74 years by age and sex. US 1971 - 1974.[1]

1. Table 21, page 74, from Health of the Disadvantaged, U.S. government publication No. HHA (77) 628. 1977.

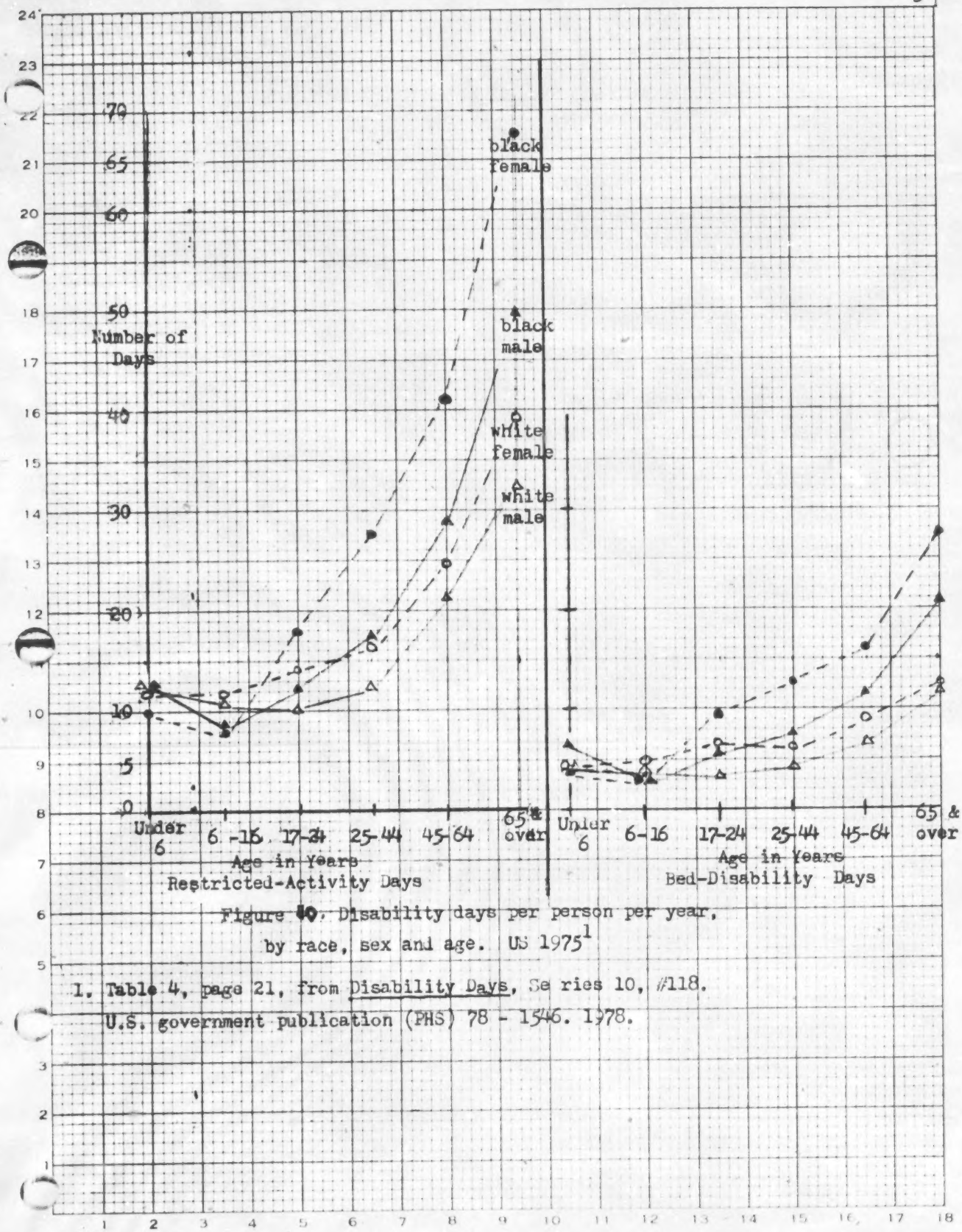


Figure 10. Disability days per person per year, by race, sex and age. US 1975[1]

1. Table 4, page 21, from Disability Days, Series 10, #118. U.S. government publication (PHS) 78 - 1546. 1978.

has been displayed in some other studies. Some of those deal with mortality rate differences, and were presented earlier in this article.

Turning to morbidity, data has been presented on the prevalence of hypertension ("definite hypertension") at different ages between 18 and 74, and has been used as the basis for the graph in Figure 9. The sex-race groups clearly differed, and each group had its own pattern across the age range.

- Figure 9 here -

The same is true for illness-disability, one of the measures commonly used for morbidity. The sex-race groups at various ages are depicted in the two graphs in Figure 10, dealing with the white and black populations in this country. The information presented is for number of "restricted activity days per person per year," and also for "bed disability days per person per year."

- Figure 10 here -

To simply say that "females are higher than males" is not entirely true, for below age 6 and beyond 25, black males were higher than white females. And the striking fact is the extent to which black females, beginning at age 17, soared out in front of the other groups, with apparently much higher rates of morbidity than any of the other three sex-race groups.

The evidence seems to indicate that there is every reason for investigating sex differences in health within a single race group rather than in groups mixed by race. Also, that differences by race groups should be more meaningful when sexes are examined separately.

The next analyses which are to be done with the Health Examination Survey Data will be to look at each sex-race group separately for the relationship of various factors to health indicators. If the health status of the groups with poorer health at adolescence and in later years is to be improved, it seems to demand a careful look at each group separately, and in terms of its own strengths and supports as well as noting its weaknesses and deficiencies. Perhaps eventually this will help sort out some of the enigmas of sex differences in mortality and morbidity. And more important, perhaps ways will be found to decrease some of the inequalities of the sex-race groups which already at adolescence are sufficiently large to be of concern to health professionals and the health care system.

References

Cole, Philip, 1974. Morbidity in the United States, pp. 65-104 in Erhardt, C., and Berlin, J. (eds.) Mortality and Morbidity in the United States. Cambridge, Mass.: Harvard University Press.

Dohrenwend, B., and Dohrenwend, B.S., 1976. Sex differences in psychiatric disorder. American Journal of Sociology 81: 1447-1459.

Gove, W.R., 1979. Sex differences in the epidemiology of mental disorder, pp. 23-68 in Gomberg, E., and Franks, V. (eds.) Gender and Disordered Behavior. New York: Brunner/Mazel.

Gove, W.R., and Herb, T., 1974. Stress and mental illness among the young: A comparison of the sexes. Social Forces 53(2): 256-265.

Health Resources Administration, 1977. Health of the Disadvantaged. U.S. Government publication HRA (77) 628.

Kitagawa, E. and Hauser, P., 1973. Differential Mortality in the United States. Cambridge, Mass: Harvard.

Lee, P.C. and Voivodas, G.K., 1977. Sex role and pupil role in early childhood education. In Katz, L., Ed. Current Topics in Early Childhood Education. Norwood, N.J.: Ablex Publishing Co.

Locksley, A., and Douvan, E., 1979. Problem behavior in adolescents, pp. 71-100 in Gomberg, E., and Franks, V. (eds.) Gender and Disordered Behavior. New York: Brunner-Mazel.

Nathanson, C.A., 1977. Sex, illness and medical care. Social Science and Medicine 11: 13-15.

National Center for Health Statistics, 1978. Disability Days. Series 10, #118. U.S. Govt. document (PHS) 78-1546.

_____, 1977. Life Tables, Vital Statistics of the United States, 1975. Volume II, Section 5.

_____, 1978. Health-US - 1976-77.

_____, 1978. Facts of Life and Death.

Spiegelman, M., and Erhardt, C., 1974. Mortality and longevity in the United States. In Erhardt, C., and Berlin, J.)Eds.) Mortality and Morbidity in the United States. Cambridge, Mass.: Harvard University Press.

Vaupel, J. W., 1978. The Prospects for Saving Lives: A Policy Analysis. Durham, N.C.: Duke University Center for Policy Analysis.

Verbrugge, L. M., 1976. Females and illness: Recent trends in sex differences in the United States. Journal of Health and Social Behavior, 17: 387-403.

Waldron, I., and Eyer, J., 1975. Socioeconomic cuases of the recent rise in death rates of 15-24 year olds. Social Science and Medicine, 9: 383-396.

Wegman, M., 1979. Annual summary of vital statistics, 1978. Pediatrics 64(6): 835-842.